

## Increased Precision and Cost Savings Through Digital Surgical Planning

a report by

**AGFA**

*Ludwigsburg Hospital Center*

The Kliniken Ludwigsburg-Bietigheim GmbH has 1,690 beds and cares for almost 57,000 in-patients and 60,000 out-patients per year. The hospital group comprises the Ludwigsburg hospital centre and the hospitals in Bietigheim, Marbach and Vaihingen, as well as the Clinic for Geriatric Rehabilitation in Ludwigsburg.

The Clinic for Accident, Hand and Restorative Surgery at the Ludwigsburg Hospital Center carries out approximately 2,700 operations each year. Much of the clinic's treatment involves endoprosthetics and the provision of medical care to patients with post-traumatic conditions. Due to its links with the hospital's renowned Neurosurgery Clinic, patients with multiple or life-threatening injuries from outside the hospital's catchment area are frequently admitted. In total, almost 20,000 emergency patients and approximately 8,000 returning out-patients are treated annually at the Clinic for Accident, Hand and Restorative Surgery.

### Going Digital

The Ludwigsburg Hospital Center is in the process of digitising its entire facility. Since the introduction of an enterprise-wide picture archiving and communication system (PACS) in 2001, the way that surgeons at the institution work has changed entirely. "Detailed surgical planning is essential for success and must be documented. Digital working methods can help achieve this", says Dr Kai Scriba, a Senior Physician at the Clinic for Accident, Hand and Restorative Surgery.

"Conventional surgical planning methods are extremely inaccurate because there is no real 1:1 relation between film and patient. The reason for this is the changing film focus distance between all the different body sizes. With digital planning solutions, especially with Agfa's OT3000 Orthopaedic Workstation solution, the images are calibrated in a much more accurate way", explains Dr Scriba.

Since 2003, all 15 staff members at the Clinic for Accident, Hand and Restorative Surgery have been working with the new solution. Currently, most of

the clinic's surgery is planned in advance using digital technology. The orthopaedic planning software provides all required prosthetics templates and ensures an automatic 1:1 representation of the images on the monitor. After pre-operative planning, the images are distributed digitally to the surgery rooms and beyond. The IMPAX solution is currently available in all operating rooms (ORs) where all images from the PACS archive can be loaded over the IMPAX WEB1000 web server image distribution system.

Dr Scriba is an enthusiastic advocate of the digital solution for orthopaedics. "When we were selecting the system, ease-of-use and an intuitive user interface were the decisive criteria. The IMPAX solution from Agfa met these requirements most precisely, more so than all other competitive systems."

### Rapid Implementation

"We installed the system within 10 days and 'armed' it overnight", explains Dr Scriba. This approach required meticulous preparation. "The implementation was undertaken without any problems due to the remarkable support provided by Agfa," says Dr Scriba. Since the benefits were clearly conveyed and quickly became evident, including the stability of the system, acceptance levels were very high from the start.

### More Precise, Saving Both Costs and Time

"After one-and-a-half years, IMPAX for Orthopaedics has delivered significant benefits. We are simply providing a higher level of quality. Planning is more accurate and rapid, and sources of error are eliminated", summarises Dr Scriba. Various prosthetic parts can be tested and corrections made easily. Consultations with colleagues are also much simpler. A further key factor is the time saved. "While we used to need 25 minutes for conventional template planning, Agfa's system now lets us do the same task in 10 minutes", says Dr Scriba.

The financial advantages are also evident. "We are saving at least one image per patient in the



planning stage. The increased accuracy has also resulted in fewer post-operative images being required”, he says. The crucial cost factor is the surgical time saved, especially when taking into account the operational costs in an OR. More accurate planning allows certain operations to be carried out in less time, and the number of complications has been reduced. Taken together, these benefits deliver higher levels of both patient and employee satisfaction.

#### **The Objective is Surgical Simulation**

“The next step will involve the introduction of a spine module, since surgery for spinal column injuries is common”, forecasts Dr Scriba. However, he has a grander vision – “We are on the brink of simulating operations. We already have three-dimensional images; our objective now is an interface between the navigation and the existing IMPAX solution”. ■